Manual

MEG101AE-R2
Quadband VDSL Extender Kit

MEG101RAE-R2
Quadband VDSL Receiver

VDSL Point to Point Solution (MEG101AE-R2)

MEG101AE-R2 works as transparent Ethernet and/or telephony point to point bridge. MEG101AE-R2 uses QAM-based 4-band VDSL technologies, which supports max distances:
1.9Km(6333ft) at 5M/5M
1.3Km(4333ft) at 15M/15M
800m(2666ft) at 25M/25M

The front-panel provides LED indications of system and interface status. The built-in POTS splitter allows a standard POTS phone to be connected. Full or half-duplex mode of LAN operations is automatically sensed and configured. VDSL link rates are configured by local Modem automatically
.
MEG101AE-R2 supports auto-speed and plug & play operations.

VDSL Point to Multipoint Solution (MEG801AE-R2 or MEG2401AE-R2 plus MEG101RAE-R2)

MEG101RAE-R2 works together with the VDSL Quadband Switches MEG801AE-R2 and MEG2401AE-R2. Using these makes this system an ideal solution for delivering cost-effective, high-performance broadband/multimedia services to Multi-Dwelling Units (MDU) and Multi-Tenant Units (MTU) environments such as hotels, campus, hospitals and telecom.

Interoperability MEG101AE and MEG101AE-R2

Due to the completely different technology R2 and non R2 systems of this series are **NOT COMPATIBLE**. You can not link any component of the older non-Quadband series (like MEG801AE or MEG101AE) together with one of these top technology series (like MEG801AE-R2 or MEG101AE-R2).

Installing the Modem

Hardware Installation

This chapter describes how to install the Modem and establish network connections. You may install the Modem on any level surface (e.g, a table or shelf). However, please take note of the following minimum site requirements before you begin. Stick the 4 plastic feet at the bottom to avoid scratches.

Pre-installation Requirements

Before you start the actual hardware installation, make sure you can provide the right operating environment, including power requirements, sufficient physical space, and proximity to other network devices that are to be connected. Verify the following installation requirements:

The standard power supply coming with MEG101AE-R2 and MEG101RAE-R2 is intended for use in Central Europe only (220V). It supplies 5V@1A. For use in USA, Japan, Australia and UK please use Black Box power supply PS649-R2 for the Transmitter and the Receiver. PS649-R2/4 is available to power 4 of these units with one power supply.

The Modem should be located in a cool dry place, with at least 10cm/4in of space at the front and back for ventilation.

Place the Modem out of direct sunlight, and away from heat sources or areas with a high amount of electromagnetic interference.

Check if network cables and connectors needed for installation are available

General Rules

Before making any connections to the Modem, note the following rules:

Ethernet Port (RJ-45)

All network connections to the Modem Ethernet port must be made using Category 5, 5e or 6. No more than 100 meters of cabling may be used between the MUX or HUB and an end node. The Ethernet port is Auto-MDI/MDIX capable, so you can always use a 1:1 straight through Ethernet cable.

VDSL Port (RJ-11)

All connections to the VDSL RJ-11 Port is made using 24~26 Gauge phone wiring. We do not recommend using 28 Gauge or above phone line. The active pins are the two middle pins 3 and 4. To have a clear setup we recommend to have the VDSL line 1:1 straight through. So, for your notice only, this VDSL device works crossed and straight through.

VDSL Port RJ-11 Pin out

Pin#	FUNCTION
1	NC
2	NC
3	TIP
4	RING
5	NC
6	NC

Phone Port (RJ-11)

Here you can connect FXS/FXO equipment. This means that on the Transmitter side you can connect your PBX and on the Receiver Side you can connect an analogue telephone. Digital Interfaces like Uk0 or Up0 may work, but there is no guarantee. We experienced that one or two ports of your Siemens, Avaya or Alcatel PBX may work fine. ISDN 2-wire works very fine. So you can extend the incoming line from your provider and connect your NTBA to the Receiver. ISDN 4-wire (ISDN BRI or S0) will not work.

Phone Port RJ-11 Pin out

Pin#	FUNCTION
1	Unused
2	Unused
3	POTS
4	POTS
5	Unused
6	Unused

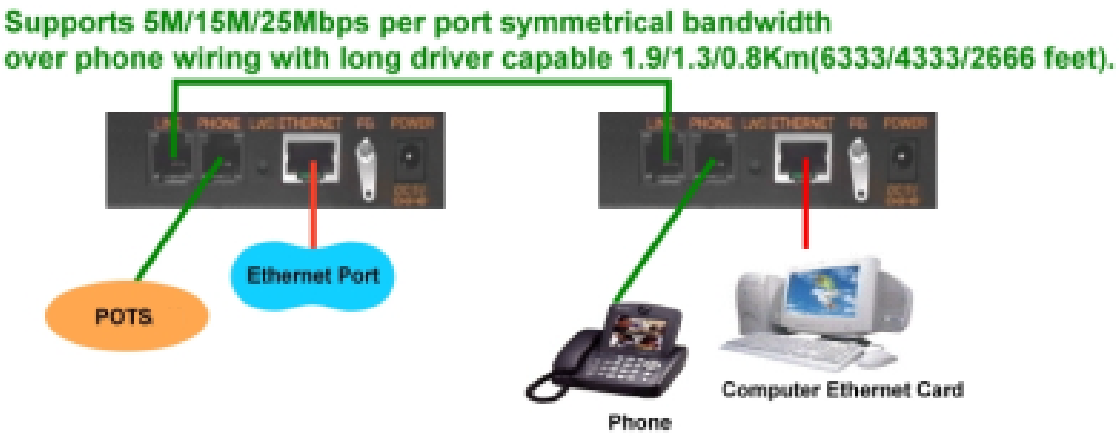
Connecting the Modem

The Modem has one Ethernet port which supports connections to Ethernet devices like NICs, Switches, bridges or routers. You can also connect to another MEG101AE-R2´s Ethernet port for daisy chaining.

The RJ11 Line port is used to connect to the “other side” through your telephony wall socket (outlet). For making connectings you can alternatively use Patchpanels or anything else (like terminal strips). You just need to be sure that you have a good electrical connection. So keep in mind that using stranded wires for use in Krone strips is not ideal.

Please note that connections are only operable between Transmitter and Receiver or between the switch (MEG801AE-R2) and a Receiver. Connecting two Transmitters or two Receivers by the Line Port will not work.

The RJ11 Phone port of the Transmitter can be connected to a PBX (ab) or your incoming 2-wire ISDN connection. The RJ11 Phone port of the Receiver can be connected to an analogue telephone, an analogue Modem or your NTBA.



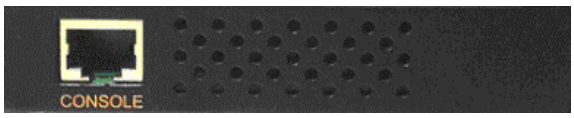
Hardware Description

Front Indicators

PWR (Power LED)
Steady Green
It will light up (ON) to show that the product is powered up.
E (Ethernet LED)
Steady Green or Flashing
It will light up when there is an active and valid Ethernet Link.
It will flash when there is Activity, meaning Ethernet packets going through.
LINE SPD (5/125/25) (VDSL LED)
It will show you that a connection to the corresponding VDSL device has been successfully established. The corresponding LED (5, 15 or 25) will tell you what the transfer speed is. This depends on the length and the quality of the wire.

Rear Panel

Line For connecting to the the “the other side”.
Phone For connecting FXS/FXO equipment
Ethernet For connecting to your Ethernet device.
FG For grounding, may be of interest when the grounding potential is different between the sides. Do not connect FG of Side A and B by a third wire in these cases.



Left side view (Transmitter only)

The following figure shows the left side connectors. You can firmware upgrade and Monitor VDSL status over console port. This port is only serviceable by Black Box technicians.

Troubleshooting

The Modem can be easily monitored through its comprehensive panel indicators. These indicators assist the network manager in identifying problems the device may encounter. This section describes common problems you may encounter and possible solutions

Symptom:	Power indicator does not light up (green) after powered on.
Cause:	Defective External power supply
Solution:	Check the power plug by plugging in another suitable power supply. Check the power cord with another device. If this fails to resolve the problem, have the power supply replaced.(PS649-R2)
Symptom:	Link indicator does not light up (green) after making a connection.
Cause:	Network interface, network cable, or switch port is defective.
Solution:	Power off and re-power the VDSL Modem. Verify that the switch and attached devices are powered on. Be sure the cable is plugged into both the switch and corresponding device. Check LED activity on your switch or corresponding Ethernet Device. Verify that the proper cable type is used and its length does not exceed specified limits (100 Meter). Check the Modem on the attached device and cable connections for possible defects. Replace the defective Modem or cable if necessary.
Symptom:	VDSL Link cannot be established
Cause:	VDSL auto speed failure, or phone cable length is over specification with the limit of 1.9km or not a 24 gauge phone wire or different grounding potentials.
Solution:	Please make sure phone wire must be connected between Transmitter and Reciver when both are power on. The Transmitter will do auto speed function depending on phone wire length, therefore if the transmitter can't detect the receiver over VDSL line while both power on, this will cause the link to fail. Please check phone cable and the length not to be over 1.9km. Try to ground Transmitter and Receiver properly.

What can I do if my line is too long?

Often there are different routes to get to the "other side". Try to find out if there is one. If not, Black Box has other xDSL devices that will make you happy. Please check MDS932AE-10BT-R2, MDS952AE-10BT and/or MDS5110AE to be the an alternative for your application by calling your Black Box office . Check www.blackbox.eu for mailadresses, phone and fax-numbers.

Product Features & Specification

- Supports plug & play, you don't need to do any setting
- Compliant with IEEE802.3 10BASE-T standard.
- Compliant with IEEE802.3u 100BASE-TX standard.
- Compliant with ETSI, ITU, ANSI standards
- Max distance 5M/5M distance up to 1.9km(6333ft)
  15M/15M distance up to 1.3km(4333ft)
  Max speed 25M symmetrical and distances up to 800m(2666ft).
- QAM-based-4Band VDSL Technology operating at the following dynamically assigned and used frequencies:
  900 KHz ~ 3.9MHz and 4MHz ~ 7.9MHz
- Supports 1 * RJ-11 connector for Ethernet over VDSL.
- Supports 1 * RJ-11 connector for telephone/PBX connection.
- Supports 1 * RJ-45 port for 10/100Mbps Ethernet with Auto MDI/MDIX.
- Supports Auto-speed and full duplex for VDSL port.
- Supports long packet size up to 1536 bytes
- Voice and Data work on the same 2 wire telephone line.
- Supports flow control IEEE802.3x for Full Duplex & Back Pressure for Half Duplex.
- Supports Surge protection.
- Provides LED indication Power, Link/Active Status for Ethernet port and Link for VDSL port.
- External switching power adapter Input: AC 85-240 volts/50-60Hz; Output: DC 5V/1A or above.
- Metal case design
- Power Consumption: Transmitter: 5.4W / Receiver: 6W.
- Operating Temperature: 0°C ~ 50°C (41F ~ 122F)
- Storage Temperature: -20°C ~ 65°C (-4F ~ 149F)
- Humidity: 10 to 90% (non-condensing)
- Dimensions: 95 x 110 x 24 mm (3.74" x 4.33" x 0.94").